Remarks

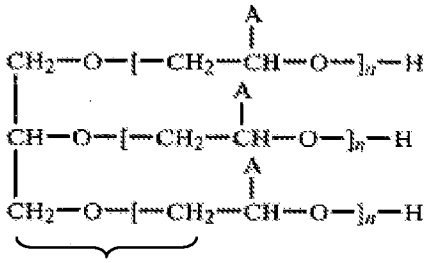
Claims 1, 7-11, and 51-53 remain pending in this application. No claims have been amended, added, or cancelled.

Claims 1, 7-11, and 51-53 are rejected under 35 U.S.C. § 102(b) as being anticipated by, or in the alternative, as unpatentable under 35 U.S.C. § 103 as being obvious over U.S. Patent No. 4,241,537 ("Wood"). Applicants respectfully traverse this rejection.

In this Response, Applicants wish to correct certain misunderstandings and misconceptions presented in the present Office Action, as outlined below.

Section 10 of the Office Action

The Examiner asserts that Wood "contains urethane linkages and not ether linkages." Applicants respectfully submit that the Examiner misstates Applicant's claims and statements. At p. 6, last paragraph of the Amendment submitted on May 4, 2010, Applicants stated that Wood teaches forming a copolyol with ether linkages at the trimethylolpropane core. This is confirmed by the structure of Wood cited by the Examiner at col. 6, ll. 45-60 where the trimethylpropane is bonded to the three copolyol branches via ether linkages, as shown below:

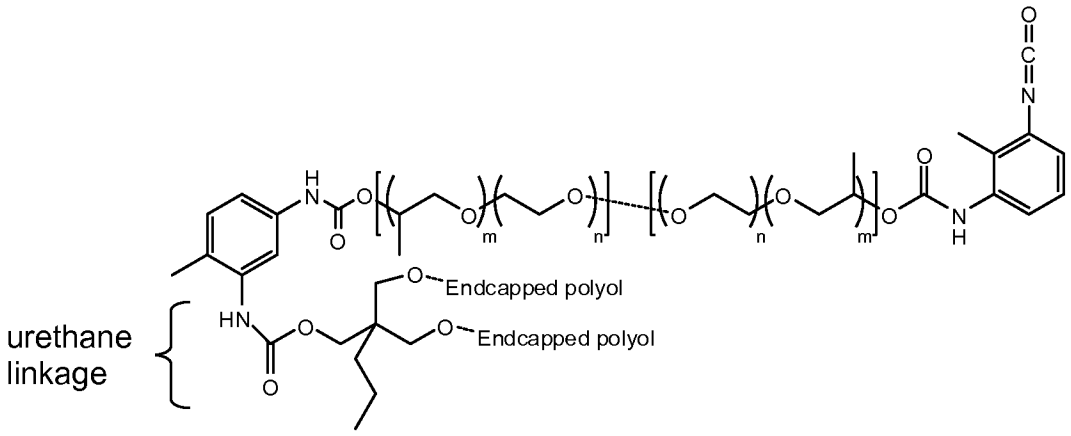


polyether core

Applicants respectfully submit an affidavit by Michael T. Milbocker, the inventor of this application, attesting that Wood teaches a core bonded to the diol branch by ether linkages. (Declaration at ¶¶ 5 and 6.)

As Applicants have previously stated (e.g., at p. 4 of the May 4, 2010

Amendment), the claims recite a process in which the resulting product necessarily has a trimethylpropane core bonded to urethane linkages, as shown below.



Substantially no ether linkages are present on the trimethylpropane core. (Declaration at ¶ 7.) Thus, the claimed invention represents a clear distinction from Wood in which the claimed product-by-process limitation necessarily results in a compound where the trimethylpropane is bonded to the diol via urethane linkages.

Applicants respectfully submit that Wood does not teach the core structure of the product resulting from the claimed invention.

Section 11

The Examiner asserts:

> Applicant has represented a two step process that is not claimed, but the claim does not recite a process that comprises two steps and forms the specific polymer represented on [page] 6 of the remarks.

Applicants respectfully disagree. Applicant's claims recite "said block copolymer polyol ... is formed from a reaction between a polyethylene/polypropylene oxide diol of between 800 and 5,000 MW, trimethylolpropane, and the low molecular weight polyisocyanate." As pointed out in the Milbocker Declaration, one does not need a two step-process to arrive at the trimethylpropane-urethane core and can form the claimed product from a one-pot reaction or a multiple-step reaction. (Declaration at ¶¶ 8 and 9.)

If all three claimed reactants, i.e., the diol, the trimethylolpropane, and the low

molecular weight polyisocyanate, are present in a single vessel, reactions will initially occur between the diisocyanate and the OH groups of the diol to form NCO-endcapped diols. This product is formed due to the higher reactivity of the diol OH groups over those of trimethylolpropane. Subsequently, the OH groups of trimethylolpropane react with the NCO-endcapped diols. Therefore, if enough NCO groups are provided to balance equal to or greater the number of total OH groups, and given the higher reactivity of the diol OH groups, the reaction naturally occurs in this sequence. The resulting product has urethane linkages at the core. (*Id.* at ¶ 10.) These reactions were previously presented at pages 5 and 6 of the May 4, 2010 Amendment.

In contrast, Wood describes first reacting the trimethylolpropane with the diol to form a polyether triol, the product shown at col. 5, lines 45-60 or at Example 1 (col. 10, l. 1.) This polyether triol is formed because an isocyanate group is not present in the reaction mixture. Nowhere does Wood describe an initial reaction between the diisocyanate and the polyether triol, nor does Wood describe the claimed reaction. (*Id.* at ¶ 11.) Indeed, by teaching the initial formation of a polyether triol, Wood teaches directly away from the claimed reaction.

Section 13

The Examiner states that Wood contemplates copolymerizing EO with PO in the presence of polyols such as trimethylolpropane, and that isocyanates are present.

Wood contemplates copolymerizing ethylene oxide (EO) and/or polyethylene (PO) in the presence of polyols such as trimethylolpropane. Once the EO and/or PO is copolymerized with polyols, the core necessarily forms a polyether core. Wood then adds isocyanates after forming the polyether core, resulting in a product having polyurethanes at the terminus of each branch emanating from the core. The addition of isocyanates after forming the polyether core will not result in polyurethanes at the core. (Declaration at ¶ 12.)

The Examiner's rationale fails to take into account any of the product-by-process limitations added by amendment in the previous response filed on December 10, 2008. Specifically, sole independent claim 1 requires that the block copolymer polyol is

trifunctional and is formed from a reaction between a polyethylene/polypropylene oxide diol of between 800 and 5,000 MW, trimethylolpropane, and the low molecular weight polyisocyanate. The product-by-process reaction would necessarily result in a product having urethane linkages near the core. Wood does not provide this teaching.

Applicants respectfully submit that Wood fails to describe or teach each of the product-by-process limitations of claim 1. Accordingly, Applicants respectfully request withdrawal of this rejection.

Reconsideration

It is believed that all claims of the present application are now in condition for allowance.

Reconsideration of this application is respectfully requested. If the Examiner believes that a teleconference would expedite prosecution of the present application the Examiner is invited to call the Applicant's undersigned attorney at (617) 933-4433 at the Examiner's earliest convenience.

Any amendments or cancellation or submissions with respect to the claims herein is made without prejudice and is not an admission that said canceled or amended or otherwise affected subject matter is not patentable. Applicant reserves the right to pursue canceled or amended subject matter in one or more continuation, divisional or continuation-in-part applications.

To the extent that Applicant has not addressed one or more assertions of the Examiner because the foregoing response is sufficient, this is not an admission by Applicant as to the accuracy of such assertions.

Please grant any extensions of time required to enter this response and charge any fees in addition to fees submitted herewith that may be required to enter/allow this response and any accompanying papers to our deposit account 02-3038 and credit any overpayments thereto.

Respectfully submitted,

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